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ABSTRACT

Positive social reinforcement (teacher attention) was used to modify the deficient social behavior of two disadvantaged Negro kindergarten children. Subjects were a girl who showed a very high amount of isolate behavior, and a boy who usually played alone, or with girls to the exclusion of boys. Data were collected for one month during half hour periods on subjects' isolate, parallel, and interactive behavior. Interactions of teachers with the subjects were recorded and classified as positive, neutral, or directive. For four days distributed throughout the study, data identical to that on the subjects were collected on the rest of the class to provide norms. Treatment programs planned for the two children involved teacher attention (positive or neutral), contingent on parallel or interactive play. For the boy, isolate play and play with girls was to be ignored; for the girl, isolate play was to be ignored. During treatment, these behaviors showed significant decreases. Extinction and reintroduction of the reinforcement programs were instituted to demonstrate their control over the subjects' social behavior. Teacher reinforcement was evidently the crucial variable factor as subjects' parallel and interactive play decreased during the extinction period. (NH)

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Modification by Social Reinforcement of Deficient Social Behavior of Disadvantaged Kindergarten Children[1]

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The systematic application of positive reinforcement principles in the classroom has resulted in the successful modification of several types of deviant child behaviors (Ullman and Krasner, 1965; Staats, 1964). Several studies have involved pre-first grade children as subjects (Harris, 1967). Directly relevant to the present study, the isolate behavior of a nursery school child has been successfully modified through the use of positive social reinforcement in the form of teacher attention (Allen, Hart, Buell, Harris, and Wolf, 1964).

The present study involves the application of social reinforcement to modify the isolate behavior of a kindergarten girl and to increase the male interactions of a kindergarten boy. Both children were Negro and members of the same kindergarten class for disadvantaged, or economically deprived, children.

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Method

Subjects

Alice entered the kindergarten group as a new student, while the other members had attended nursery school together. Alice had attended school the year before with another group. The teachers, aware of her strangeness to the group, made attempts to make Alice feel comfortable and include her in all activities. After two months, however, the teachers described Alice as "shy, withdrawn, and sometimes rejected by the other children."

Unlike Alice, Allen had been a member of the class for a year prior to kindergarten. The teachers were concerned about Allen's patterns of annoying other children and either playing completely alone or with girls to the exclusion of other boys. The study with Allen was instituted to decrease his isolate play and increase his interactions with other boys.

It should be noted at this point that neither the teachers nor the researchers assumed that isolate activity was necessarily inappropriate or unproductive behavior. The prime concern in Alice's case was her obvious rejection and the unproductiveness of her isolate behavior. In Allen's case the concern was over his lack of male interaction accompanied by an inability to deal effectively with aggression on the part of other boys and his adoption of feminine behavior above the norm. It was deemed desirable in terms of their overall social development that they at least experience more interactions with other children.

Behavioral Data Classification and Collection

Data were collected for 30 minutes daily during "work period," a time during which the children chose among several play activities related to units they had been studying. Typically, at least five activities were available to the 15 children in the class.

The subjects' behavior was classified as isolate, parallel, or interactive play. Isolate play was defined as any activity in which no peer was actively involved or even participating in a similar activity in the near vicinity. Activity of the child which was of the same type as nearby peers but which did not include active interaction with them was labeled parallel play. When the child was participating in an activity with other children and was interacting with them, verbally or non-verbally, his behavior was labeled interactive play. For Allen, parallel and interactive play was further coded as play with boys or with girls. If any boy was involved even though several girls were included the behavior was classified as with boys. For both subjects, isolate behavior was further classified as concentrated activity or as wandering behavior. The observer obtained five reliability checks with the teachers obtaining overall agreement of 84%.

To provide a record of the reinforcement program, the interactions of the two teachers and the teachers' aide with the two children were recorded. An interaction was considered to be activity or proximity of the teacher which was related to the subject. Interactions were classified as one of three types. Positive interactions included any teacher behavior, verbal or non-verbal, which implied approval or at least acceptance of the behavior the subject was emitting. Neutral interactions were neither approving nor disapproving, but were typically academic conversation of some variety.

Directive interactions involved teacher behavior consisting of overt directions to the subject, typically involving the choice of activity by the subject.

During four days distributed throughout the study, data identical to that obtained on Alice and Allen, were collected on the rest of the class. These norms were collected by sampling each child's behavior several times during work period.

The data of both subjects and teachers were recorded by one research technician on a 20-channel event recorder. Data collected in this manner yield frequency and duration of each pupil and teacher category and allow analysis of the temporal aspects of pupil and teacher behavior.

Procedure

Baseline. Data were collected over a month's time to provide a baseline from which to develop a treatment plan and to which changes in behavior could be compared. Although a time span of one month was covered, actual data days were less (13 for Alice, 14 for Allen) due to absences, holidays, and schedule deviations. During this time, the teachers were instructed to make no major changes in their behavior toward the two subjects, but to deal with any new problems in any way they deemed appropriate. They were given no behavioral management consultation during this time.

Social reinforcement (Treatment I). For Allen, the original reinforcement program (Treatment I) involved teacher attention (positive or neutral) contingent on parallel or interactive play with boys or girls.

Isolate play and play involving girls exclusively was to be ignored. At the beginning of the treatment, because Allen usually played the record player throughout the entire work period, it was necessary to give him a choice of two activities involving other children (directive interactions). This "priming" was discontinued as the treatment became effective.

For Alice, the treatment program consisted of teacher attention (positive or neutral) contingent on parallel and interactive play with boys and/or girls. Isolate behavior was to be ignored. Treatment I was continued 13 days for Alice and 12 days for Allen.

Social reinforcement (Treatment II). At the end of Treatment I, a second reinforcement program was considered necessary for Allen. Treatment II consisted of increased teacher reinforcement of Allen's play with boys and decreased attention contingent on play with girls. Isolate behavior was to be ignored still. This procedure did not apply to Alice. Treatment II with Allen continued for 14 days.

Extinction. Following Treatment I for Alice and Treatment II for Allen, an extinction phase was introduced. Reinforcement of parallel and interactive play by both children was decreased. This period lasted seven days for Allen and four days for Alice.

Reintroduction of social reinforcement. Following the extinction phase, Treatment I was reintroduced for Alice and Treatment II was reintroduced for Allen. Data were collected for nine days on Alice and ten days on Allen.

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Although the formal study ended following this phase, the reinforcement contingencies were continued at a gradually decreasing level by the teachers as an integral characteristic of the children's environment.

Results

Interactional Analysis

In this study, the treatment program was as carefully recorded as the child's behavior. Table 1 presents the interactional data for Allen. For clarity of presentation all mean interactions less than 1 were disregarded. Inspection of the baseline contingencies reveals that Allen received teacher attention fairly equally for isolate play and parallel or interactive play with girls, an indication of the distribution of his behavior. Under Treatment I, teacher attention to parallel play with boys and girls and interactive play with boys increased. Attention to isolate play and interactive play with girls decreased. Total positive interactions increased by greater than a factor of 5 and neutral interactions almost doubled. Directive interactions decreased.

Present Table 1 about here

In Treatment II as planned, attention to Allen's parallel and interactive play with girls decreased from a total mean of 17 interactions in Treatment I to 2. Attention to isolate behavior decreased further than it had in Treatment I. On the other hand, attention to play, both parallel

and interactive, with boys increased. Total interactions decreased in Treatment II and the contingencies were definitely different from Treatment I.

Extinction and reintroduction interactions were distributed as planned. Interactions contingent on play with boys under extinction were greatly decreased. Reintroduction was similar to Treatment II, but involved even greater attention to both types of play with boys.

A similar interactional analysis for Alice is presented in Table 2. Interactive behavior was not socially reinforced in baseline, probably due to its low level of occurrence. Treatment consisted, as planned, of attention contingent upon parallel and interactive play and decreased attention to isolate play. Extinction was a decrease in treatment contingencies rather than a return to the baseline distribution of interactions. Reintroduction was similar to treatment with additional attention to interactive behavior.

Present Table 2 about here

The purpose of the interactional analyses is to document the actual nature of the planned reinforcement program. The data presented in Tables 1 and 2 provide ample evidence that the teachers made the adjustments in their behavior called for by the treatment program.

Modification of Alice's Behavior

The norms represented by the other girls in the class were 20% isolate play, 46% parallel play, and 34% interactive play. As presented in Figure 1,

the distribution of Alice's baseline behavior was 34% isolate, 54% parallel, and 12% interactive play. Her behavioral patterns describe a girl typically alone or participating only in a marginal manner. In addition, her isolate-wandering (I-b) behavior was above the norm (1%) at 5%.

Present Figure 1 about here

The changes in Alice's behavior as a function of the treatment, presented in Figure 1, were very positive. Isolate play represented only 13% of her behavior with isolate-wandering decreased to 1%. These proportions compare very favorably to the girls' norms. Both parallel and interactive behavior increased.

The effects of extinction on Alice's behavior are very interesting. Isolate behavior increased as compared to treatment, but did not return to baseline level. The increasewas primarily in isolate-wandering behavior which returned to a level greater than baseline. Interactive behavior fell to a level lower than baseline, while parallel behavior rose to its highest point. During extinction, therefore, Alice was more isolated and less interactive than during treatment, but emitted more parallel activity. Teacher reinforcement was evidently the variable maintaining Alice's increased interactive play for when treatment was reintroduced, it returned to its original treatment level. Isolate and parallel behaviors also returned to treatment level. During reintroduction, Alice's interactive play was 26% of her total behavior compared to the girls' norm of 34%, quite a change from her baseline level of 12%.

Modification of Allen's Behavior

The norms obtained for the boys in the class yielded 16% isolate play, 10% parallel with boys, and 42% interactive with boys. As presented in Figure 2, the distribution of Allen's baseline behavior was 37% isolate, 6% parallel with boys, and 3% interactive with boys. Clearly, Allen was extremely atypical in that 32% of his play was with girls.

Present Figure 2 about here

Also shown in Figure 2, during Treatment I, isolate behavior decreased, as did play with girls. Both parallel and interactive play with boys increased (35%) but play with girls remained more frequent at 47%. Consequently, Treatment II, during which play with boys was reinforced as opposed to play with girls, was introduced. Under Treatment II, play with boys rose to 60%, while play with girls fell to 24%. However, a great percentage of Allen's play with boys was parallel play.

During extinction, Allen's isolate behavior increased, as did play with girls. Parallel play with boys did not decrease but interactive play with boys sharply decreased to 6%, only slightly higher than his baseline level. As with Alice, teacher attention was evidently crucial in maintaining his interactive play with boys. When Treatment II was reintroduced, both parallel and interactive play with boys increased, while isolate play and parallel and interactive play with girls decreased as compared to the extinction measures.

Discussion

Withdrawn or isolate behavior is not extremely uncommon in any pre-first grade classroom. Among children from disadvantaged backgrounds, such behavior patterns are even less uncommon. For that reason, the reinforcement techniques successfully employed in this study are very relevant to behavioral management systems within the classrooms of disadvantaged pupils. Although this general approach probably has been used without design in many classrooms, the systematic application of positive social reinforcement provides a teacher with powerful guiding techniques to be used within her normal schedule.

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Footnotes

1 Supported by the Education Improvement Program (Ford Foundation), Durham, North Carolina.

2 Study completed while a Research Training Fellow with the Duke University Center for the Study of Aging and Human Development (Grant 5T01HD00164 from the National Institute of Child Health and Human Development). Presently at George Washington University, Washington, D. C.

Table 1.

Allen: Daily Mean Frequency and Type of Teacher Interaction by Pupil Behavior and Condition

Teacher Interaction	Pupil Behavior					Total
	Isolate	Parallel		Interactive		
		Girls	Boys	Girls	Boys	
Baseline						
Positive	1	1		1		3
Neutral	4	3		3		10
Directive	1	2		1		4
Total	6	6		5		17
Treatment I						
Positive	2	6	3	3	2	16
Neutral	2	7	5		5	19
Directive		1	1			2
Total	4	14	9	3	7	37
Treatment II						
Positive			2		2	4
Neutral	1	2	9		7	19
Directive						
Total	1	2	11		9	23
Extinction						
Positive			1			1
Neutral	1	2	4			7
Directive						
Total	1	2	5			8
Reintroduction						
Positive				2		2
Neutral	1	2	16		10	29
Directive		1	1			2
Total	1	3	17	2	10	33

Table 2.

Alice: Daily Mean Frequency and Type of Teacher Interaction by Pupil Behavior and Condition

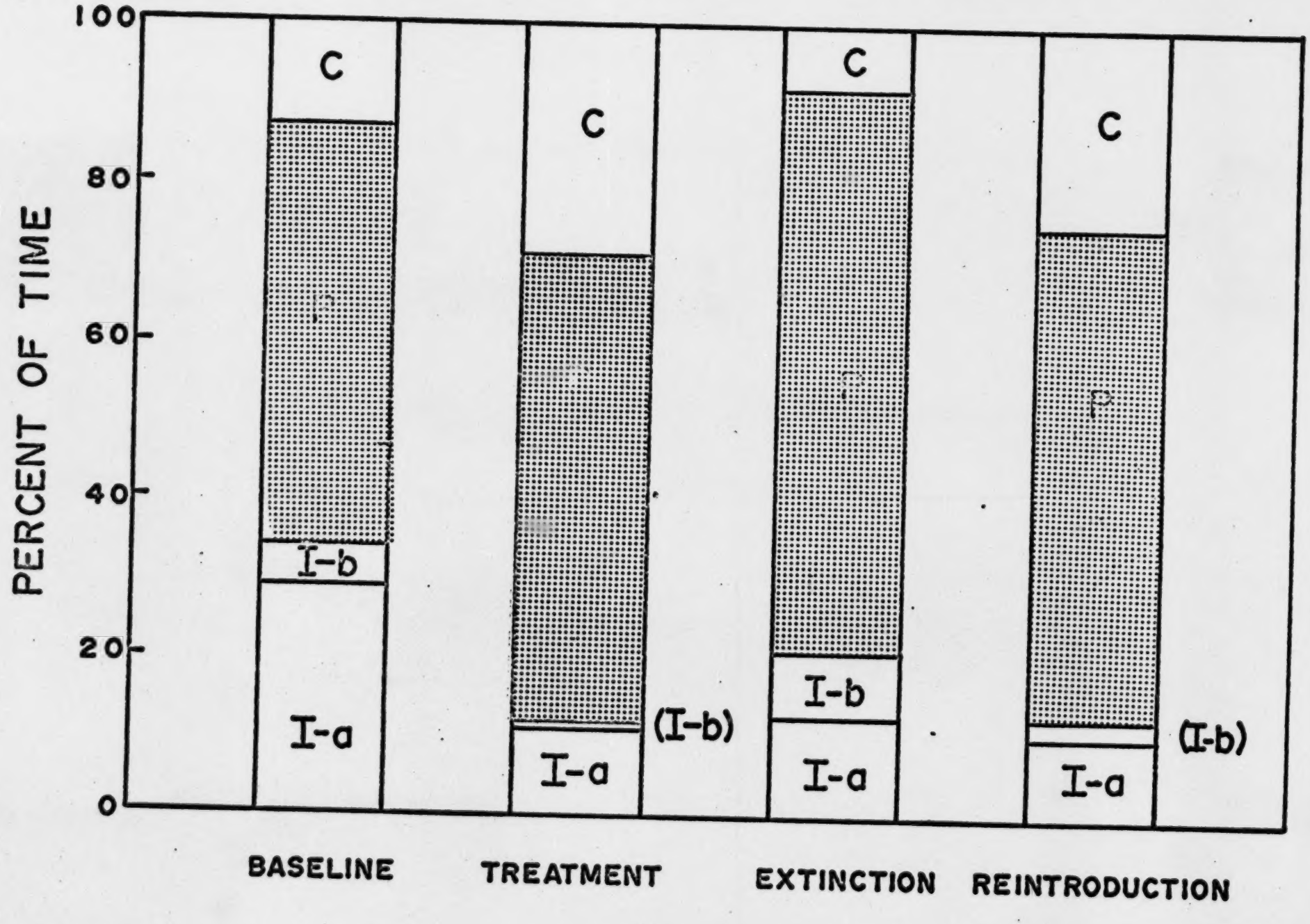
Teacher Interaction	Pupil Behavior			
	Isolate	Parallel	Interactive	Total
Baseline				
Positive	2	2		4
Neutral	3	3		6
Directive		1		1
Total	5	6		11
Treatment				
Positive		4	2	6
Neutral	1	9	4	14
Directive		1		1
Total	1	14	6	21
Extinction				
Positive			1	1
Neutral		3		3
Directive				
Total		3	1	4
Reintroduction				
Positive		1	2	3
Neutral	1	11	8	20
Directive		1	1	2
Total	1	13	11	25

Figure Captions

Figure

1 Alice: Percentage of isolate-concentrating (Ia), isolate-wandering (Ib), parallel (P), and interactive ("cooperative" C) play as a function of experimental condition.

2 Allen: Percentage of isolate-concentrating (Ia), isolate-wandering (Ib), parallel with girls (Pf), parallel with boys (Pm), interactive with boys ("cooperative" Cm), interactive with girls ("cooperative" Cf) play as a function of experimental condition.


100
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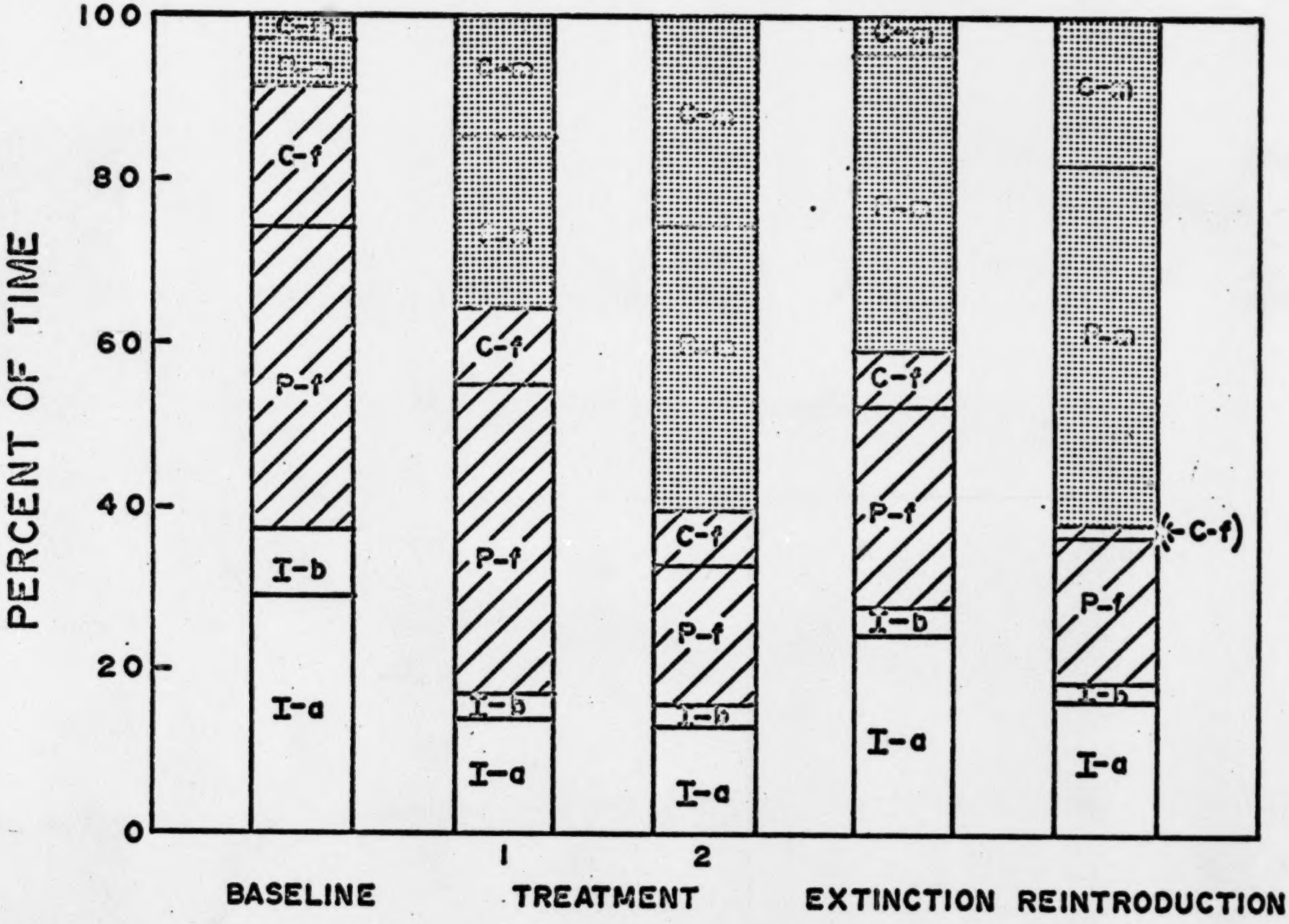
BASELINE
TREATMENT
EXTINCTION
REINTRODUCTION
CONDITION

Figure 1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PERCENT OF TIME
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BASELINE
TREATMENT
EXTINCTION
REINTRODUCTION
CONDITION

Figure 2